

30 November 2023

Anna Kominik
Electricity Authority Chair
Electricity Authority
PO Box 10041
Wellington 6143

Dear Anna,

Advice resulting from the 26 October 2023 meeting of the Security and Reliability Council

The Security and Reliability Council (SRC) is tasked with providing the Electricity Authority Te Mana Hiko (Authority) with independent advice on the performance of the electricity system and the system operator, and reliability of supply issues.

At the October SRC meeting

The theme for the October SRC meeting was *Technology and Information Security (in regard to market operations service providers)*, an expansion of the SRC's previous theme of cyber security. To support this theme, the SRC received presentations from:

- InPhySec,
- Transpower/Energy Market Services (EMS),
- New Zealand's Stock Exchange (NZX),
- Jade Software Corporation Limited (Jade),
- The Authority's Commercial team,
- A participant case study (Mercury Energy) and
- An academic researcher.

The InPhySec representative, as an independent cyber security expert, attended all items relating to the technology and information security theme and assisted the SRC in writing its advice to the Authority.

The SRC also reviewed and revised their risk radar, a copy of which is included in the minutes for the October meeting.

This letter is the SRC's advice arising from the meeting.

Technology and information security

The SRC has a theme of technology and information security (including cyber security) to inform its risk framework and enable focus on critical areas of the sector potentially impacting security and reliability. The SRC focused on Market Operation Service Providers (MOSPs) for this meeting, given the critical role they perform for the sector.

The SRC heard presentations from subject matter specialists (InPhySec), the Authority (in its role of procuring their services and monitoring their performance) and two case studies.

This gave members a broad understanding of the issues and the work underway or being considered to address them.

The SRC was pleased to hear learnings from recent events are being applied by the MOSPs, including guidance and tools from overseas and inclusion of dedicated roles responsible for uplifting technology and information security performance. This recurring theme through the presentations shows how the sector is nearer the beginning of the journey as the pace of change accelerates and certain risks, such as cyber-attack, increase with connectedness between participants and consumers.

Some participants in a recent survey noted barriers to uplift their technology and information security performance. Trust and privacy concerns appear to limit some participants' engagement with the wider sector and regulators. Other reported concerns include reputational risk of discussing vulnerabilities and the risk of incurring liabilities or being subject to punitive regulatory action.

The SRC considers there is a need to actively reduce barriers and focus on shared learning and collaboration on solutions for efficiency and for the long-term benefit of consumers.

The SRC recommends the Authority raise the concerns noted in the survey with the Commerce Commission (with regard to distributors), the Privacy Commission, and the National Cyber Security Centre (NCSC) to consider what could be done to meaningfully reduce these concerns. The SRC also suggests these agencies contact Jeff Whitty, who ran the survey and analysed the results.

Another issue potentially limiting information sharing is the level of engagement participants have with information agencies may decline as these organisations grow. Such agencies include the Consortium for Electric Reliability Technology (CERT) and Control Systems Security Information Exchange (CSSIE). This may seem counterintuitive, but as membership of these organisations increases, a sample of sector participants report a preference to limit collaboration to trusted organisations of similar nature, size and maturity to themselves rather than sharing widely amongst the agency membership. While understandable, this creates a potential barrier to flow of critical information and exacerbates siloing of effort in parts of the sector.

The SRC recommends the Authority encourage participants to proactively seek support through these or similar agencies, and to disclose any barriers to engagement, so they can be addressed. Given the diversity across participants, in terms of both risk and the options to address them, there will need to be a range of potential solutions.

Other emerging themes and issues from presentations include:

- There are varying levels of technology and information security maturity across the sector. Some organisations have only recently appointed individuals to security roles and security plans and roadmaps are in the process of being developed or implemented.
- Governance boards of Participants should be treating cyber security in the same way as other risks they are expected to address, however
 - Levels of awareness need to be raised
 - The risks should be articulated as describing a business impact, not a technology impact

- Cyber risks should be considered in existing risk frameworks
- Supply Chain Risk Management must also be factored in and contractual arrangements re-visited.
- The impact and cost of recovery goes beyond the organisation's direct costs. The cost of prevention and protection is invariably far less than the cost of recovery.
- The use of mandatory minimum standards is advocated by specialists and have been implemented by other New Zealand regulators, such as the Financial Markets Authority and Reserve Bank of New Zealand. However, some standards are risk based rather than minimum requirements, therefore may be interpreted differently. Care is needed to avoid highlighting weaknesses for bad actors to exploit. Any standards imposed will need to be maintained and organisations may need to be given several budget cycles to implement.
- To ensure risk management is effective, best practice is to frequently test plans and processes and run exercises and conduct annual security evaluations, both internally and across the industry.

Sector experts have confidence emerging security technologies are, or will become, commercially viable for smaller organisations in future. To ensure the sector maximises this opportunity and minimises the downside risk, it needs to build trust and avoid roadblocks in the way it manages security.

Where meaningful improvement in technology security and resilience is not achievable voluntarily the Authority should consider whether regulation through the Code mandating minimum standards is required.

Winter concerns

When reviewing its risk radar at recent meetings a key theme concerning members is the issue of winter peak capacity and how this can be addressed.

The SRC is very concerned about how the power system will cope during winter 2024 and beyond, in part due to a lack of visibility of how various initiatives across the sector will work together to support the security and reliability New Zealanders expect at the lowest cost.

The SRC's concern also relates to energy supply, based on the net of new and retiring plant leaving a deficit in energy available over Winter 2024. This deficit includes the delayed commissioning of the Geothermal Tauhara plant¹ and delayed outages to get through winter 2023.

The SRC believes the Authority is not expressing its concern enough about the SOSA forecast generation falling below the Authority approved energy margin in the very near future, creating an impression these are acceptable. The SRC recommends the Authority either be more publicly vocal about the need for more generation investment or consider a review of the margins to understand if they are providing an accurate measure of the most efficient level of generation build.

The wider industry, including regulators, must accept where we are on the technology landscape and that for now (and 'now' could be one or two decades) grid scale solutions

¹ As shown in the system operator's draft Winter review 2023 and as highlighted in the system operator's Weekly Update for 19-11-2023

are necessary, as DER will be insufficient to provide the necessary balance to ensure security and reliability nationally is maintained.

The SRC would like the Authority, in its Kaitiaki role, to provide more regular commentary on security of supply relating to winter, in combination with other reports and commentary from the sector. The purpose is to give industry confidence (by avoiding 'blind spots' in the Authority's information) and to support better common understanding of issues with information from trusted sources.

The Authority has a key role to give participants and consumers guidance and, where appropriate, assurance about work undertaken or proposed and how this will benefit consumers. An example is Transpower's Winter 2024 paper (due December 2023) covering peak and energy demand challenges and where this fits with the Authority's review of implemented winter 2023 measures and future reporting on the issue.

To promote the right level of investment in security, the SRC considers guidance from the Authority needs to include a longer-term view (i.e., 5-10 years) giving more clarity to potential investors.

The SRC has asked its secretariat to provide updates on Authority winter initiatives at its Q4 meeting each year from 2024 onwards. The aim is to increase visibility and provide timely information. This will supplement information members receive in their substantive roles and from the Authority, the system operator and others.

Tree regulations review

Outages caused by vegetation outside the regulated clear zone continue to be the dominant cause of outages for many distributors. The SRC recommends the Authority raise the issue urgently with the new Minister of Energy.

The SRC also recommends the Authority ask the MBIE team responsible for the Tree Regulation review to survey distributors to get this year's out of zone vegetation outages data. This information will demonstrate the ongoing and increasing threat to reliability of supply, and the need to prioritise the implementation of improved Tree Regulations.

Annual review of system operator performance

The SRC received the system operator's annual self-review of performance, together with comments from Authority staff, as part of maintaining the SRC's lens on system operator performance.

Members acknowledged the system operator's work and achievements over the year and the SRC agrees in principle with the proposed recommendations from the Authority for the year ahead. The SRC would especially like to acknowledge the system operator's efforts to support the Authority in delivering Real Time Pricing (RTP) and to engage through the CEO forum, industry exercises and fortnightly operational updates.

The SRC acknowledges the system operator's efforts to get more information from the generation and distribution parts of the sector. It is critical for certain information to be made available to the system operator, to support its sharing of aggregated security of supply information to promote investment in generation and demand response. The system operator could use the self-review to note the impact of a lack of information and any potential solutions.

The SRC would like to see more compliance commentary in the report and better balance by incorporating errors/issues/failures during the reporting year. This would set out the system operator's performance more clearly, both generally and against key metrics, and give robust commentary on any areas needing improvement.

The SRC acknowledges the vast majority of the system operator's work is done well and is 'below the radar'. However, the SRC recommends the annual review needs to be a more balanced review of performance rather than a "glossy brochure" highlighting the successes.

The SRC acknowledges the system operator's annual self-review is Code-mandated and serves as a useful starting point for the Authority's review. However, embracing transparency, the Authority should consider whether it is time for an independent review, as part of the annual review process. This would give a fresh perspective and gain independent feedback on the revised performance metrics as well as the overall performance. The results could feed into the system operator's operational excellence programme, as part of the system operator's support for industry evolution.

The SRC noted Rulings Panel decision C-2022-002 at a previous meeting and questioned why it was not included in the system operator's annual self-review. It was released during the reporting period and contained relevant adverse findings. The SRC also noted there was no mention of raised issues during the review of the SOSFIP and the delays in getting an acceptable proposed SOSFIP for approval.

It is good to see the Authority's review has noted this as a general point for the system operator to include in future.

The SRC welcomed the inclusion of transactional feedback from participants in this year's self-review but would like to see more meaningful targeted feedback that demonstrates the experience of engaging with the system operator. The system operator could use short surveys to achieve this, or it could be included as part of an independent review. The SRC considers this an opportunity to increase trust and confidence in the system operator and sector generally and will make for a more meaningful annual review process.

The SRC's next meeting

The theme for the SRC's Q1 (February) meeting for 2024 is future power system architecture and the system operator's support for industry evolution.

The aim is to reflect on general assumptions about the power system and test their relevance against future-state and security risks. It will cover how the system operator's processes are evolving to meet the needs of a more decentralised power system.

The SRC welcomes suggestions from the Authority about its forward work programme.

Yours sincerely,



Hon Heather Roy
Chair of the SRC

cc: SRC members, Grant Benvenuti and James Blake-Palmer (Authority)

8 January 2024

Hon Heather Roy
Chair
Security and Reliability Council (SRC)

By email: heatherjroy@gmail.com

Dear Heather,

Response to your letter of 30 November 2023

Thank you for your letter of 30 November 2023 that gives the SRC's advice arising from its 26 October 2023 meeting. The Board of the Electricity Authority Te Mana Hiko (Authority) considered all the advice at our 18 December 2023 meeting.

Technology and Information Security

As we discussed when we met with Sarah, the Board is in full support of SRC's ongoing focus on technology and information security and very much appreciated the insights that were drawn from the discussions you have been having. You play an important role in continuing to inform and shape our strategic thinking. Acknowledging the importance of this issue and the pace of change, we would encourage a continued and regular focus on the topic. Please also let us know what other resources could be useful and also, whether there are opportunities for presentations to a joint SRC/Board meeting.

The Authority is also grateful for the SRC's focus on Market Operations Service Providers (MOSPs) and acknowledges the sense of urgency.

As a first step, the Authority will be incorporating the SRC's feedback into ongoing work with the MOSPs and include learnings in the MOSP retendering process (scheduled to start in 2025, with new arrangements coming into effect from 2027). The Authority will endeavour to do the same during 2024 as part of the system operator contract renegotiation, which will be effective from 2025.

We also note the concerns the SRC has noted about possible barriers to uplifting technology and information security performance. The Authority's role in MOSP oversight aims to ensure MOSPs align with their obligations and perform as they should to support a secure and reliable system now and into the future and we also recognise that we have a facilitation and information sharing role, as well as a regulatory one.

We are keen to determine some practical ways that we, as the Authority, support MOSPs to be even more efficient and effective and take on board the SRC's comments about the need to engage with appropriate expertise, as well as determining a way to support more shared learnings and collaboration on solutions.

We also take on board the SRC's recommendation to raise the concerns noted in the survey with the Commerce Commission (with regard to distributors), the Privacy Commission, and the National

Cyber Security (NSC). As part of this, we will encourage these agencies to contact Jeff Whitty, who ran the survey and analysed the results.

I know you are already aware there is work underway, lead by the Department of the Prime Minister and Cabinet (DPMC), on critical infrastructure reform aiming to enhance resilience against a range of natural and hostile threats (including cyber). The Authority has been engaging with the DPMC and understands they are considering a range of tools including mandatory reporting, minimum standards, step in powers and (potentially) a new resilience-focused government agency. This work should include a review and potential overhaul of the Voluntary Cyber Security Standards for Control Systems Operators (VCSS-CSO) developed in 2019¹.

The Authority understands minimum standards may be considered as part of the DPMC's work but decisions may yet be sometime away. In the light of the SRC's feedback, the Authority's staff will write to DPMC and pass on the SRC's feedback on minimum standards and the need for urgency.

The Authority appreciates the SRC's insights on participants' experience working with the Consortium for Electric Reliability Technology (CERT) and Control Systems Security Information Exchange (CSSIE) and other agencies, to uplift sector performance. Participants' perceived barriers to engagement with these agencies are important context both for our own work and for CSSIE and CERT to consider as well. With your agreement, Authority staff will pass on the SRC's feedback and survey information to CSSIE and CERT.

Winter concerns

The Authority shares the concerns of the SRC members regarding issues around security of supply, both for the coming two winters and beyond. We are doing considerable work around the risk assessment for winter 2024 and beyond. We recognise the risks involved with the current winter-to-winter approach and are looking to determine a more strategic transition over 'framed' time horizons, so we are deliberately building for a future state, while managing our immediate risks.

The Authority is very conscious that initiatives implemented to manage near-term issues, say the next one to two years, do not disincentivise innovation and investment for the medium and long term. The timeframe needed for the development and commissioning of new physical resources is such that the near-term problem becomes one of co-ordinating the currently available resources as efficiently as possible. Incentives must avoid 'locking in' current technologies and business practices at the expense of medium and long-term innovation.

As a foundation, we have continued confidence that the package of measures, put in place when the Authority was formed, has performed well. This includes the Act obligating the system operator to provide information, and short- to medium-term forecasting on all aspects of security of supply; and manage supply emergencies. In addition, the Security of Supply forecasting and information policy (SOSFIP) sets out regular monitoring and annual reporting the system operator must provide, the System operator Rolling Outage Plan (SOROP) sets out how and when the system operator will co-ordinate the individual distributor and direct connect consumer rolling outage plans, and the EMP sets out the system operators emergency management plan. In addition, the customer compensation scheme and the stress tests provide incentives to hedge and therefore support security by providing generation with a secure income stream. The Authority is working with the system operator to review the SOROP and ensure it is fit for purpose. A system operator led consultation on proposed changes to the SOROP is expected in early 2024.

¹ <https://www.ncsc.govt.nz/assets/NCSC-Documents/VCSS-CSO-Final-Oct-2019.pdf>.

Options to improve security of supply

The Authority has a range of projects underway to enhance security of supply during the transition and to better manage supply risks. These include:

- Enhancing dispatch notification, an initiative aimed at reducing barriers to participation of aggregated demand response and distributed energy resources (DER)
- Options to enhance the participation of demand side and grid scale flexibility in the energy and ancillary services markets. Benefits include additional revenue streams for flexible resources, such as aggregated and grid-scale batteries, enabling faster investment decisions and implementation
- Improving visibility of discretionary demand management, which will be consulted on starting in late December 2023
- The Authority has also confirmed that we will be making permanent three of the four initiative put in place to enable participants to better manage winter 2023 peak supply issues

More explicitly focused on peak capacity issue, the Authority's will soon begin consultation on peak capacity management initiatives ahead of winter 2024. This consultation will provide a platform to find solutions for how all participants – including the Authority – will seek to manage this risk.

In addition, the Authority is also intending to distribute a questionnaire to all participants to gauge the quantity, diversity and price sensitivity of demand side resources in the wholesale market. Information gained from this survey will inform future initiatives aimed at enhancing demand side participation in the wholesale market.

The Authority's future security and resilience workstream is looking at the longer-term picture to ensure grid resilience, as we transition to a low emissions economy. The Authority is also working on the next evolution of the markets to respond to the increasingly diverse and dispersed sources and to harness the growing flexibility in the system and is looking forward to the final report from the Market Development Advisory Group (MDAG) to support this work.

Regarding the SRC's views on the technologies required to support security of supply, it is obvious from the scale of investment occurring and planned in the industry that grid scale solutions will continue to attract investment for some time and, as noted above in the Authority's other workstreams on managing peak capacity issues, it is not ignoring this sector of the market.

However, we have a market-based system, and this has delivered over a long period of time, including appropriate exit of capacity. It is investors that decide what technology they invest in, and it is the Authority's role to make sure that there are no regulatory impediments to any technology. Our work on DER is ensuring a facilitative regulatory environment for DER, the same as exists for grid scale solutions.

This is a key component in the Authority's workstream on regulatory settings for distributors. The focus on this is driven in part by the need to increase consumer understanding about the benefits of participating and the potential costs of simply building more assets and bigger networks to address shortfalls.

The Authority has also recently completed a second survey of generation investment in New Zealand, which will be available and we will send through in January 2024. This is an important ongoing monitoring exercise to determine future capacity. This survey shows that committed generation capacity has risen from 2,600 GWh to nearly 5,000 GWh in the last 12 months. Similarly, there has been an almost doubling of actively pursued generation to 20,800GWh. These increases are despite cost increases and supply chain challenges. Within this context we will be interested to see the 2024 SOSA.

We welcome the SRC's continued work on these issues

The Authority welcomes ongoing advice from the SRC and others to support the work we are doing in the security of supply space.

Given the oversight responsibilities of the Authority's Market Operations Committee (MOC) there might also be a good opportunity to align the work programmes of the SRC and MOC. This may allow a more coordinated approach to managing security of supply through both regulatory and contractual settings.

Tree regulations review

The Authority agrees with the SRC, as to the urgency of MBIE's tree regulations review and will raise this with the new Minister of Energy, recommending quick action.

Staff will also raise the question of out of zone vegetation outage data with the review team at MBIE, given the potential for such data to demonstrate the extent of the issue and its impact. It is important to stress such a survey should not delay other work that could progress sooner.

Annual review of system operator performance

The Authority appreciates the SRC's input on the annual review of system operator performance. Staff have noted potential points to include in the Authority's review. The Authority's review will be finalised and published ahead of the SRC's Q1 2024 meeting and staff will ensure a copy is provided to the SRC secretariat, when available.

The Authority considers the system operator's self-review an important part of its system operation function and supports its continuation and ongoing inclusion in the Code. The Authority notes the SRC's suggestion to consider whether it is time for an independent review as part of the annual review process. The Authority will consider this suggestion and will likely discuss this further with the system operator. There is also potential to include an independent review as part of the system operator contract renegotiation which will be underway in 2024. While the system operator role is not subject to a retendering process, an independent review could provide insights to include in the contract in the future, as well as in future self-reviews. In the interests of continuous improvement and transparency a potential independent review might elicit different perspectives and fresh thinking, could gauge the new system operator performance metrics, and could suggest future improvements to maximise the system operator's support for industry evolution.

The Authority acknowledges the SRC's suggestions to support the flow of information to the system operator to inform its forecasting work. The Authority considers the system operator is very forthcoming in advising regulators of its needs, both financially and in terms of regulation and has other levers available, if required. The Authority will take the necessary action if the system operator believes it needs more information to perform its obligations.

Authority staff will provide feedback to the system operator about including more compliance material in future self-reviews to provide greater clarity about the system operator's performance over the reporting period.

The Authority supports the SRC's suggestion for the system operator to include targeted transactional feedback that demonstrates participants' experience of working with the system operator. Staff have noted this point to discuss with the system operator.

The SRC's next meeting

The Authority acknowledges the SRC's focus on power system architecture and system operator support for industry evolution at its next meeting. As noted in our last letter to the SRC, this is the item we propose Board member Lana Stockman, as MOC Chair, attend. This is being arranged through the secretariat.

The Authority welcomes the SRC including its risk radar in the minutes for each meeting. While it is not the Authority's role to approve the SRC's focus areas or work programme, the risk radar gives a useful opportunity for the Board support the SRC's work and make meaningful suggestions.

The Authority would like to take the opportunity to thank the SRC for its advice over the course of 2023 and looks forward to engaging further in 2024. Your work and insights are an important and valued part of the Authority and we are incredibly grateful to you and all your Council for their commitment, passion and insights.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Anna Kominik', written in a cursive style.

Anna Kominik
Chair
Electricity Authority Te Mana Hiko